REMARKS

Claims 1-20 are pending in the application. No claims are amended herein.

Applicants acknowledge with appreciation the indication that claim 8 would be allowable if rewritten in independent format. However, because Applicants consider that all of the presently pending claims are allowable, for the reasons set forth herein, claim 8 has not been amended into independent format.

For the reasons set forth below, Applicants respectfully request reconsideration of the application, withdrawal of the asserted rejections of Applicants' claims, and allowance of all presently pending claims.

Rejection of Claims 1-7 and 9-20 under 35 U.S.C. § 102(e)

Claims 1-7 and 9-20 now stand rejected as anticipated by Ma et al., U.S. Patent No. 6,407,435 B1. Whereas the Examiner previously rejected these claims as obvious over this reference, the Examiner has now restated the rejection to a contention that the claims are anticipated by Ma et al. Applicants respectfully traverse this rejection for at least the following reasons. Applicants respectfully request the Examiner to withdraw the rejection of these claims on all grounds and to allow all of the presently pending claims. The rejections are clearly erroneous and contrary to both fact and law.

1. The Examiner Failed to State a *Prima Facie* Case of Anticipation.

The Examiner has repeatedly admitted that Ma et al. does not disclose or suggest a reaction product between the high-K dielectric material and the standard-K dielectric material. For this reason, the Examiner has failed to state a *prima facie* case of anticipation of Applicants' claimed invention by the disclosure of Ma et al.

The Examiner has now, in the final Office Action, attempted to overcome this clear evidentiary failure by contending that this feature would have been *inherent* in Ma et al. The Examiner's mere incantation of the "inherent" doctrine cannot overcome the clear failure of factual evidence in support of the Examiner's contention. The *only* basis for the contended inherency is, as Applicants allegedly admitted, that some part of the

annealing temperature range disclosed by Ma et al. overlaps Applicants' disclosed temperature range and therefor *might possibly* attain the conditions required to cause a reaction between the high-K dielectric material and the standard-K dielectric material at their interface. This contention fails to provide a sound basis for inherency on both factual and, most importantly, legal grounds. Simply stated, the Examiner has failed to carry the initial burden of stating a case of inherency, because the contended conditions of Ma et al. only might possibly, but not necessary would, obtain the result taught by Applicants and because absent Applicants' teaching of the reaction to form a composite layer, there is no basis whatsoever that a person of ordinary skill in the art would recognize that this reaction would necessarily take place. Since the Examiner failed to carry the initial burden, there is no burden to shift to Applicants to rebut the Examiner's contentions. As shown by the following, there is no basis in fact or law for the Examiner's contentions.

Accordingly, the rejection of Applicants' claims is clearly erroneous and contrary to the law, and must be withdrawn.

Applicants respectfully request the Examiner to reconsider and withdraw the rejection of the presently pending claims, and to issue a Notice of Allowance forthwith.

2. The Disclosure Missing from Ma et al. Is *Not* Inherent in the Reference.

The Examiner has admitted that Ma et al. fail to expressly disclose the formation of a composite dielectric material.

Under the doctrine of inherency, if a claimed element is not expressly disclosed in a prior art reference, the reference will still be deemed to anticipate the claim if the missing element "*is necessarily present* in the thing described in the reference, *and* that it would be so *recognized by persons of ordinary skill.*" *Continental Can Co. v. Monsanto Co.*, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). "Inherent anticipation requires that the missing descriptive material is '*necessarily present*,' not merely probably or possibly present, in the prior art." *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 63 USPQ2d 1597, 1599 (Fed. Cir. 2002) (quoting *In re Robertson*, 49 USPQ2d 1949, 1950-51 (Fed.

Cir. 1999)) (Emphasis added above.). Furthermore, inherent anticipation requires that the necessary presence of the missing descriptive matter would be recognized as being present by persons of ordinary skill in the art. See, MPEP 2163.07(a), which states:

> "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. *The mere fact that a certain thing may result from a given set of circumstances is not sufficient.*'" In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). (Emphasis added.)

In the present case, the Examiner has failed on both counts.

First, the Examiner has failed to show that the missing disclosure is necessarily present, rather than being merely possibly present under certain selected conditions. The best the Examiner can do is to assert that under certain conditions, selected from the reference in hindsight, a composite dielectric material might be formed. This is both insufficient and inadequate to support the contended inherency.

Second, the Examiner has failed to make any showing that the necessary presence of the missing disclosure would be recognized by those of ordinary skill in the art. The Examiner relied upon Applicants' own disclosure and claims, and attempted to bootstrap Applicants' arguments into an admission that, at certain temperatures, the composite dielectric material would be formed. Applicants submit there was no such admission. This, too, is both insufficient and inadequate to support the contended inherency.

3. The Examiner Failed to Show a Sound Basis for Believing That the Products of Applicant and the Prior Art Are Inherently the Same.

Under the law of inherency, as set forth by the Examiner in the final Office Action, it is incumbent upon the Examiner to show *a sound basis* for believing that the

products of Applicant and the prior art are inherently the same. Applicants respectfully submit that the Examiner has failed to make any such showing.

The Examiner, having admitted in both the first Office Action and the present, final Office Action that Ma et al. does not disclose or suggest a reaction product between the high-K dielectric material and the standard-K dielectric material, now contends, based on Applicants arguments in response to the first Office Action, that such was inherent in Ma et al. This contention is clearly erroneous.

The Examiner, at page 3 of the final Office Action, contended:

> Ma et al. do not explicitly specify a reaction product of the high-K dielectric material and the standard-K dielectric material. However, Ma et al. teach a step (550) which is the annealing of the multilayer dielectric stack at temperature range from 400°C to 900°C to condition the high-k layers and the interposing layers (which are low-k layers) as well as the interfaces between the various layers (col. 7, lines 19-28). The device was formed of above combination of references and claimed device are identical in structure. So, it inherently posses the same characteristic as claimed device.

This contention fails to show a sound basis for believing that Applicants' claimed invention is anticipated by Ma et al., even under the doctrine of inherency.

In the Response to Arguments, at page 10 of the final Office Action, the Examiner contended as follows:

> The applicants ague [*sic*, argue] that annealing at temperatures ranging from 400°C to 900°C would be insufficient to form the composite disclosed and claimed by applicants.
>
> The examiner disagrees because the 435's patent disclosed the temperatures ranging from 400°C to 900°C (column 7 lines 25), this range of temperature would be fall within the range temperature of the claimed invention. Further, the applicants has admitted the possibility of causing the reaction to take place between the high K and standard K materials to form a composite dielectric material, as claimed (page 6 last paragraph of the remark), therefore the claimed invention would be anticipated to the 435's patent.

The foregoing statements by the Examiner both mis-stated the Applicants' arguments and failed to show that the claimed invention is anticipated.

With respect to the responses to Applicants' arguments, Applicants argued only that a substantial portion of the range of Ma et al. would be insufficient to form the composite, and stated "the process of Ma et al. *might possibly* cause a reaction to take place between the high-K and standard-K materials to form a composite material, as claimed." In the context of Applicants' argument, this sentence was *immediately* followed by a statement of the law that "probabilities or possibilities are insufficient to prove inherency." The Examiner has improperly taken a selected portion of Applicants' arguments out of its context in an effort to bolster the contention that Applicants admitted the inherency since there is no other "sound basis for believing" the missing disclosure is inherent in the reference. For the Examiner to attempt to use Applicants' arguments in this manner not only fails to support the Examiner's position, but it is also improper since Applicants' arguments have been taken out of context.

Second, as any person of skill in the art would immediately recognize based on Applicants' disclosure (and *not* on that of Ma et al.), the temperature at which a given high-K and a given standard-K dielectric material would react with each other is highly dependent on the exact nature of those materials and other conditions which may affect the reactivity of those materials. Here again, the reaction contended by the Examiner to be inherent might or might not occur, depending on the conditions. This fact again shows that there is no inherent disclosure of Applicants' claimed invention in Ma et al.

CONCLUSION

For the foregoing reasons, Applicants respectfully submit that all of the presently pending claims patentably distinguish over the prior art generally, and over Ma et al. in particular, and that all of Applicants' claims are therefore in condition for allowance. Applicants request the Examiner to so indicate.

If the Examiner considers that a telephone interview would be helpful to facilitate favorable prosecution of this application, the Examiner is invited to telephone the undersigned.

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No additional claims fees are believed due for the filing of this paper. However, if a fee is required, please charge the fee to Deposit Account No. 18-0988, Order No. G0533A.

Respectfully submitted,

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